

Remarks

The changes to the specification correct typographical and grammatical errors. Although the specification is being amended to change the present application from a divisional to a continuation-in-part, the Applicants are not taking any position at this time regarding the extent to which the claims are supported by the original specification.

The changes to pages 9 and 10 are intended to change what some may consider as insensitive. The Applicants intend no offense by making such changes, and apologize for any distress.

Respectfully Submitted,

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Appendix

In the specification

On page 1, replace the first paragraph, lines 10-15, with - -

The present invention [is in the area of services provided by service suppliers, and pertains generally to methods and apparatus for marketing services that may be reserved by customers through a variety of communication systems and interfaces, and more particularly to methods and apparatus for micro-managing data entities in a transaction database using time-span algebra] relates to Internet commerce in general and the marketing of services over the Internet in particular.

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Also on page 1, replace the second paragraph, lines 20-24, with - -

The present invention is a continuation-in-part [divisional] of US patent application S/N 09/594,419, filed 6/14/2000 and entitled "Methods and Apparatus for Marketing Reservable Services." [, disclosure of which is included herein in its entirety by reference.]

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On page 2, replace lines 22 through page 3 line 5, the paragraph bridging pages 2 and 3, with - -

The record of the development of the Internet is a record of expanding ways in which those who have services to sell can offer and transact those services to the Internet-connected world. At the time of the present patent application, there are already many Internet systems in place for offering and contracting services. Also, in most cases, the

services offered [our] are reservable; that is, one may contract to purchase such a service at a particular place and at a particular time. Some enterprises, for example, allow people to reserve tables at various restaurants on specific dates and at specific times. Others allow golf enthusiasts to reserve tee-times at various golf courses. All such systems advance consumer facility in at least a small way. Still, a great number of individual sites, each offering one or a few related services, creates a maze of difficulty for the Internet consumer.

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On page 8, replace the last paragraph, lines 9 and 10, with --

Fig. 6 is a flow diagram illustrating an exemplary transaction process in an embodiment of the present invention.

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On page 9, replace the first paragraph, lines 8 through 24 with --

A few specific examples will clarify what the inventors mean by reservables. Beauty salons, considered as a class of service suppliers, will all typically employ hair stylists, that is persons with the skill and training (and perhaps licensing as well) to do hair styling. All hair stylists also may be considered to offer services within a certain broad definition of hairstyling services, including such as hair washing, permanents, and the like, and such services may be considered to typically endure for certain time durations. There are therefore global definitions that may be made for hairstyling services. A particular salon, in a particular locale, however, will employ a specific group

of persons for performing hair styling services, and each of these persons will have an individual set of skills, and an individual matrix of availability. As a concrete example, Miranda [Chavez] Wilson may be employed by XStream Hair Salon in San Mateo, CA, and she may offer (through her employer at the supplier's place of business) hairstyling within a specific class of styles, each session to consume a time duration of 90 minutes, and priced at \$35 per session.

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Also, replace the paragraph bridging pages 9 and 10, page 9 lines 24 through page 10, line 4, with --

Given the above discussion of general service and particular services relative to resources, a *reservable* for the purposes of the present specification, is at the most particular level: A reservable will appear in the database of the system of the invention as, for example, a Miranda [Chavez] Wilson styling session, with its attendant constraints on time, nature of service, and price. And is differentiated specifically from a Barbara Turner styling session, which might appear as a reservable in the database, having a different duration, applying to different hair styles, and at a different price, even though Barbara Turner may be employed by the same supplier.

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On page 10, replace the first full paragraph, lines 5-16, with --

Further to the above, Miranda [Chavez] Wilson may be multi-talented, and enabled by skill set, license, and whatever else might be required, to do pedicures as well

as hair styling. In this case there may well be reservables in the database, constrained particularly to Miranda, having a duration, a description of service content, and a price, for pedicures. By virtue of two different reservables, Miranda may be engagable for any one of several services in the same or overlapping time durations. The system of the invention is required, as customers engage services (make reservations), to amend the inventory of reservables accordingly. That is, when Miranda is engaged for a pedicure from 2:00 to 3:00 PM on a particular afternoon, she will no longer be available to do hair styling in that time frame, and the system has to amend the inventory of reservables to suit.

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On page 12, replace the last full paragraph, lines 21-24, with - -

This implementation differs from systems which use discrete representations of service availability: for instance, the barber's availability might be represented by 14 "bins,"[,] each 30 minutes in length, end-to-end, running from 10am to 5pm.

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On page 15, replace the first full paragraph, lines 8-20, with - -

Fig. 1 is a schematic diagram of a system according to a preferred embodiment of the present invention. Fig. 1 illustrates a client station 11 having a personal computer (PC) 13 and a telephone 15. A personal-computer such as PC 13 in a home is a typical way in which a person may access and browse the Internet. The skilled artisan will recognize and understand that such a PC is but one of many ways a client may access the

Internet network. At the time of the present patent application there is rapid growth in the use of handheld devices for Internet access. Such devices include personal organizers, cellular telephones, handheld computers, and several other devices. PC 13 in Fig.1 is therefore meant to represent all of the many Internet appliances that may be used to access and browse the Internet, except the case of Internet access by cellular telephone, which is represented in Fig. 1 by telephone 20 acting through interface 22.[.]

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On page 17, replace the first paragraph, lines 1-8, with - -

In addition to the above, access to server 23 may also be made by cellular telephone. A single cellular telephone 20 is illustrated in Fig. 1 as connecting wirelessly to a cellular interface 22, connecting conventionally to PSTN 33. The skilled artisan will be aware that block 22 represents all [off] of the equipment and connections that are known in the art for communication by cellular telephone. Also that the single telephone 20 represents the ability of customers and suppliers to interact with the system of the invention by cellular telephone.

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On page 19, replace the last paragraph, lines 8-28 with - -

Referring now to Fig. 2, as an overview of the database in a preferred embodiment of the present invention, organized by data structures, reservables 39 represent the inventory of time-based entities (services) offered for reservation and sale, as described above. Reservables are calculated (instantiated) by a unique time-line

algebra in preferred embodiments of the invention[,] from unions and intersections of other data structures, in particular from such as resources, suppliers, resource capabilities (skill sets), and service definitions. Specific suppliers having certain fixed and variable resources may contract with the exchange in a preferred embodiment of the present invention. The suppliers contracting with the exchange are listed and identified as data structures 41, labeled suppliers. Typically, each contracting supplier is identified by such characteristics as full name, at least one address, city, state or province, a country code, a postal code, a vertical key, determining to which vertical services industry the supplier's business may be classified, a region key, determining the geographic region of the supplier, certain other properties, and a flag for availability. Data structure 41 identifying suppliers is implemented in the database in a formal manner in which some, but perhaps not all, of the characteristics described may be required. In some embodiments, as described above, there may be but a single supplier to whom all resources are associated.

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Also, replace the paragraph bridging pages 20 and 21, page 20 line 27 through page 21, line 7, with --

Every resource has specific capabilities and uses, and these capabilities are recorded as a separate data structure 45. Each resource capability 45 is tagged in a preferred embodiment with the resource ID and supplier service ID, and is characterized in the data structure by one or more of the following attributes: availability, duration, cost, duration max, duration min, duration interval, and perhaps a textual description. A single resource, it should be noted, may have, if a person, a relatively wide range in skill

set, and may therefore be capable of performing a relatively broad range of services. A resource capability represents one such skill of such a resource.

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On page 24, replace the first full paragraph, lines 3-18, with - -

The interconnecting arrows in Fig. 2 indicate interrelationships between the various data types and structures. Given the set of data structures described with reference to Fig. 2, and suitable control functions and software described in enabling detail below, reservables are created (instantiated) in an ongoing fashion from unions and intersections of other data entities, customers may be efficiently and quickly matched with resources associated with contracting suppliers, and a variety of pre-and post reservation services may also be provided. It should be remembered, as well, as described above, that in some cases engagements may be made by customers with specific suppliers, and in some cases engagements may be contracted between a customer and the enterprise hosting the service exchange in an embodiment of the invention. In the latter case, the engagement is supplier-independent, and the enterprise hosting the exchange has latitude in specifying a supplier after an engagement is contracted with the customer. However, [Supplier] supplier-independent reservables and engagements are not [denizens of] foreign to single-host systems.

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On page 25, replace the second paragraph, lines 15-25, with - -

In a preferred embodiment, considering the multiple-supplier exchange model, there are a variety of different ways in which business enterprises [which] that wish to participate may do so. One method provided by the system of invention is through a browser interface. Fig. 3 is a schematic drawn from Fig. 1 of supplier communication with the system for creating a supplier relationship with system, and for such other tasks as defining and posting reservables with the system. In this arrangement a supplier may interact with the system on server 23 by means of PC 14 at supplier station 12, establishing connection to the Internet 31 via ISP 18. The skilled artisan will be aware, again, that the schematic is representative of all of the conventional means by which a supplier may accomplish Internet connection.

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On page 34, replace the last paragraph, lines 18-26 with - -

The present inventors have noted that there are particular advantages, in such as data transmission, for example, in representing certain entities as XML strings. Among these entities are the records described above that may be expressed as potentially infinite time spans. In a preferred embodiment many such records may be expressed for certain purposes as XML strings. The system, for example, converts customer requests to XML expressions, and also expresses many database entities at some point as XML strings. The skilled artisan will recognize that the software of the invention may [covert] convert between XML and other sorts of expressions.[.]

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On page 37, replace the first full paragraph, lines 3-8, with - -

In a preferred embodiment a unique [time-span] timespan algebra described more fully below is employed by the system in searching, selecting, and presenting, and also in instantiating reservables from other database entities. In this algebra, the customers input is expressed in XML terms, reservables from the database are expressed in XML terms, and the algebra is employed to find intersections with reservables.

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Also on page 37, replace the second paragraph, lines 9-14, with - -

The customer (G. Smith) in the end selects a haircut from Bunny for 10:00 AM on Tuesday (day not indicated in Fig. 4a), resulting in engagement 95. The system records the engagement transaction, and stores the engagement (reservation). A range of [date] data is associated with the engagement, such as the customer ID, the supplier ID, the resource ID, the day, the time, and so forth.

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On page 44, replace the first paragraph, lines 5-14, with - -

Another characteristic of the system of the invention in a preferred embodiment is the [fact] use of a moving window of active data entities such as reservables and engagements such as reservables and engagements. As described above, the time span by definition, and by construction in XML, is theoretically infinite in extent. For purposes of finite operations, a time window is imposed upon the database in a preferred embodiment, and operations are typically confined to the time window. This widow is

theoretically of arbitrary extent, as well, and serves to limit the size of the data repository wherein reservables and some other data structures are stored and to therefore limit the computational cost of operations thereupon.

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Replace the paragraph bridging pages 49 and 50, page 49, line 16 through page 50, line 3, with --

Provision is made in the system for a number of novel functions. For example, pricing of time-based inventory may be dynamic. As a simple example of dynamic pricing of time-based inventory in this context, consider the six-week time window (exemplary), and the fact that all transactions with a customer occur *now*. The enterprise hosting the system may contract with suppliers for one price, say a fixed price over the time window period, but market the inventory at other prices. In the dynamic context there may be a relatively higher price for engagements within one to three days, a lesser price from three days to one week, and a sliding scale beyond one week, with engagements made six weeks out at a minimum price. There are many possibilities for time-based dynamic pricing. In another example, dynamic pricing may also be based on items such as inventory level. Supply and demand becomes freely applicable, with the relative supply and the relative demand determining pricing, and mechanisms may be included for applying intelligence to pricing based on transaction history stored for a particular customer.

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On page 52, replace the last full paragraph, line 11-27, with - -

As described above, suppliers are registered with and known to the hosting enterprise, and the host may make a broad variety of contractual relationships with suppliers. There will be, in many instances of the system, a single supplier, such as instances where the system is configured for one enterprise. Similarly, it was described above that customers, once they enter and use the system, become known to the system. The system in one aspect keeps continuously updated records of all transactions, and makes updates to both supplier and customer history. Many special services to both suppliers and customers may be predicated on such historical [record] records. A customer with an active and regular purchase record will, in some embodiments, be offered special breaks, coupons, and the like, and may also be given priority in certain situations; where inventory becomes relatively scarce for a time, for example. In some cases there may be special relationships between suppliers and customers, and joint profile and history records may be kept and used. Certain suppliers may wish to accord VIP status to certain customers, and to provide special advantages to such customers.

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